



KNOX COUNTY SCHOOLS CURRICULUM & INSTRUCTION DEPARTMENT CURRICULUM FRAMEWORK



Mathematics – Grade 3 Grade 3 Standards

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*Major Content is indicated with green shading.

The following KCS teachers and instructional coaches have revised this curriculum document on May 24, 2016:

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Below are resources and activities that should be considered in each module for use as centers, seatwork, small group activities, assessments, or enrichment:

<http://edutoolbox.org/tntools/menu/grade/819/955>

<http://www.debbiewaggoner.com/elementarygradesk5.html>

<https://ccgpsmathematicsk5.wikispaces.com/Number+Talks+and+other+Multi+Grade+Resources>

Howard County Tasks*

<https://grade3commoncoremath.wikispaces.hcpss.org/home?responseToken=0c70aebc453239b3085638eb395eb9a16>

Module 1: Operations and Algebraic Thinking, Part 1		Suggested Percent of Time: 20% (7-8 weeks)
Module Overview: Students will be able to explain multiplication using equal groups and arrays. Use order and grouping to make multiplying easier. Break apart numbers to make multiplying easier. Understand division as a multiplication problem. Use multiplication and division for facts up through the 10s. Find the rule for a pattern and explain why the pattern works.		
<p>Essential Questions:</p> <ul style="list-style-type: none"> • How is multiplying like adding? • Why do the groups have to be equal when you multiply? • Why would you want to group factors in different ways when multiplying? • How might knowing about breaking apart a factor into smaller products be helpful to you? • How do you know what number to begin with when you divide objects or numbers? • Why is dividing objects like separating objects? • How does division relate to multiplication? • How can you use multiplication to help you divide? • How can you use an array to help you think about both multiplication and division? • How can using a chart help you to recognize patterns in addition or multiplication? 		
Pre-Requisite Skills and Knowledge: Represent and solve problems involving addition and subtraction. Add and subtract fluently within 20. Work with equal groups of objects to gain foundations for multiplication.		
Vocabulary: multiply, factor, product, divide, dividend, divisor, quotient, array, unknown, pattern		
Spotlighted Mathematical Practices: MP2, MP3, MP4		
Standards	Teacher Friendly Notes	Activities/ Resources
<p>Represent and solve problems involving multiplication and division.</p> <p>3.OA.A.1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. <i>For example, describe a context in which a total number of objects can be expressed as 5×7.</i></p> <p>3.OA.A.2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. <i>For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.</i></p> <p>3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = \diamond \div 3$, $6 \times 6 = ?$.</i></p>	<ul style="list-style-type: none"> • Refer to area model (3.MD.C.5, 3.MD.C.6, 3.MD.C.6) to connect the concepts • Students should make a connection between repeated addition and multiplication. • Students need to experience problem solving involving equal groups (whole unknown or size of group is unknown) and multiplicative comparison (unknown product, group size unknown or number of groups unknown). 	<p>Envision:</p> <p>Topic 5: Lessons 51, 52, 53, 56, 57, 58, 59</p> <p>Topic 6: Lessons 61A, 61, 62, 63, 64, 66</p> <p>Topic 7: Lessons 71, 72A, 73</p> <p>Topic 8: Lessons 81, 82, 83, 84, TN4, 85</p> <p>Engage NY: Module 1 and 3: https://www.engageny.org/resource/grade-3-mathematics</p>

Understand properties of multiplication and the relationship between multiplication and division.

3.OA.B.5 Apply properties of operations as strategies

to multiply and divide.² *Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)*

3.OA.B.6 Understand division as an unknown-factor problem. *For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.*

Multiply and divide within 100.

3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

3.OA.D.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*

²Students need not use formal terms for these properties.

- Students should be encouraged to solve these problems in different ways to show the same idea and be able to explain their thinking verbally and in written expression. Allowing students to present several different strategies provides the opportunity for them to compare strategies. (example: arrays, repeated addition, groups, story problems).
- Sets of counters, number lines to skip count and relate to multiplication and arrays/area models will aid students in solving problems involving multiplication and division. Allow students to model problems using these tools.
- Students should represent the model used as a drawing or equation to find the solution.
- Show a variety of models of multiplication. (i.e. 3 groups of 5 counters can be written as 3×5 .)
- Provide a variety of contexts and tasks so that students will have ample opportunity to develop and use thinking strategies to support and reinforce learning of basic multiplication and division facts.
- By the end of Grade 3, students need to know from memory all products of two onedigit numbers.(ex. 1x1 up to 9x9)

Tasks from Illustrative Mathematics:

<https://www.illustrativemathematics.org/content-standards/3>

Additional Tasks:

<http://3-5cetask.ncdpi.wikispaces.net/Third+Grade+Tasks>

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Module 2: Number and Operations in Base Ten		Suggested Percent of Time: 10% (3-4 weeks)
Module Overview: Students will learn to round numbers, and add, subtract, and multiply numbers. Students should be able to fluently add and subtract within 1000 by the end of third grade. Students should be able to use strategies to multiply onedigit numbers by multiples of ten. Emphasize multiple strategies and conceptual understanding to develop mathematical understanding.		
<p>Essential Questions:</p> <ul style="list-style-type: none"> • How does rounding relate to estimation? • How can you apply rounding and estimating to mental math? • How do you know when to round up or down? • Is it more accurate to round to the nearest ten or nearest hundred? • When do you need to regroup? • What role does place value play in subtracting and adding? • How can you use onedigit multiplication to help you multiply multiples of ten? 		
<p>Pre-Requisite Skills and Knowledge:</p> <ul style="list-style-type: none"> • Understand place value to 1000. • Skip count by tens, hundreds, and thousands. • Identify whether a digit is less than, greater than, or equal to 1000. 		
Vocabulary: round, place value, estimate, an estimate		
Spotlighted Mathematical Practices: MP2, MP6, MP7		
Standards	Teacher Friendly Notes	Activities/ Resources
<p>Use place value understanding and properties of ⁴ operations to perform multi-digit arithmetic.</p> <p>3.NBT.A.1 Use place value understanding to round whole numbers to the nearest 10 or 100.</p> <p>3.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> <p>3.NBT.A.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80, 5×60) using strategies based on place value and properties of operations.</p> <p>⁴ A range of algorithms may be used.</p>	<ul style="list-style-type: none"> • Emphasize use of multiple strategies and visuals for rounding (ex: rounding using a number line, rounding chant, rounding mountain/rollercoaster) • Emphasize use of multiple strategies for addition/subtraction (ex: open number lines, base 10 blocks, paper and pencil, expanded form). • Explicitly teach properties of addition/subtraction. 	<p>Envision: Topic 1: Review if needed: Lessons 11, 12, 15A 15B Topic 2: Lessons 24, 26, 28 Topic 4: Lessons 41A, 41, 42, 44, 45 Topic 5: Lesson 58A</p> <p>Engage NY: Module 2 https://www.engageny.org/resource/grade-3-mathematics</p>

	<ul style="list-style-type: none"> • When possible, make connections between multiplication/division and addition/subtraction. • Continue practicing/spiraling multiplication fact fluency. • Use number talks as a strategy to incorporate and deepen conceptual understanding. 	Tasks from Illustrative Mathematics: https://www.illustrativemathematics.org/content-standards/3 Additional Tasks: http://3-5cctask.ncdpi.wikispaces.net/Third+Grade+Tasks
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Module 3: Operations and Algebraic Thinking, Part 2		Suggested Percent of Time: 12% (4 ½ weeks)
Module Overview: Students will solve onestep word problems using multiplication or division. Model two step word problems using the four operations. Solve twostep word problems using the four operations.		
Essential Questions: <ul style="list-style-type: none"> • How are multiplication and division alike and different? • How do you know what mathematical operations to use when modeling word problems? • How is the order in which you use different operations in a problem important? • Why could it be useful to know several ways that you can model the same problem? • When solving problems how can you tell when to use multiplication and when to use division? • What are some different ways to model twostep word problems? 		
Pre-Requisite Skills and Knowledge: Represent and solve problems involving addition and subtraction. Add and subtract fluently within 20. Work with equal groups of objects to gain foundations for multiplication.		
Vocabulary: multiply, factor, product, divide, dividend, divisor, quotient, array, unknown		
Spotlighted Mathematical Practices: MP1, MP2, MP3, MP4		
Standards	Teacher Friendly Notes	Activities/ Resources
Represent and solve problems involving multiplication and division. 3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. ¹ Solve problems involving the four operations, and identify and explain patterns in arithmetic. 3.OA.D.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation	See teacher notes from Module 1. This module builds upon those standards and encompasses one and twostep word problems.	Envision: Topic 2: Lesson 210 Topic 3: Lesson 35 Topic 4: Lesson 46 Topic 5: Lesson 510 Topic 6: Lesson 67 Topic 7: Lesson 75 Topic 8: Lesson 86

<p>and estimation strategies including rounding.³</p> <p>¹See Glossary, Table 2.</p> <p>³This standard is limited to problems posed with whole numbers and having whole- number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).</p>	<p>Engage NY: Module 7 Topic A Lessons 13 https://www.engageny.org/resource/grade-3-mathematics</p> <p>Tasks from Illustrative Mathematics: https://www.illustrativemathematics.org/content-standards/3</p> <p>Additional Tasks: http://3-5cctask.ncdpi.wikispaces.net/Third+Grade+Tasks</p>
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Table 2

	Unknown Product	Number of Groups (How many groups?)	Size of Group Unknown (How many in each group?)
Equal Groups	Mark has 4 bags of apples. There are 6 apples in each bag. How many apples does Mark have altogether?	Mark has 24 apples. He put them into bags containing 6 apples each. How many bags did Mark use?	Mark has 24 apples. He wants to share them equally among his 4 friends. How many apples will each friend receive?
Area/ Arrays	Mark's bookshelf has 3 shelves with 6 books on each shelf. How many books does Mark have?	Mark has 18 books. They are on shelves with 6 books on each shelf. How many shelves are there?	Mark has 18 books on 3 shelves. How many books are on each shelf?
Compare	In June, Mark saved 5 times as much money as in May. In May, he saved \$7. How much money did he save in June?	In June, Mark saved \$35.00. In May, he saved \$7.00. How many times as much money did he save in June as in May?	In June, Mark saved 5 times as much money as he did in May. If he saved \$35.00 in June, how much did he save in May?
General	$a \times b = ?$	$a \times ? = p$, and $p \div a = ?$	$? \times b = p$, and $p \div b = ?$

Module 4: Number and Operations- Fractions		Suggested Percent of Time: 15% (5-6 weeks)
Module Overview: Students will deepen conceptual knowledge of fractions, identify fractions on a number line, identify equivalent fractions, find equivalent fractions, and compare fractions using symbols.		
Essential Questions: <ul style="list-style-type: none"> • How can you name a given piece of a fraction using unit fractions? • How can you name multiple sections of a fraction by adding unit fractions? • How can the space between zero and 1 on a number line be divided into equal parts? • What elements of a number line need to be included when creating a number line that shows fractional pieces? • What does it mean for two fractions to be equivalent? • How can we incorporate our knowledge of multiplication to recognize equivalent fractions? • What are different strategies to use to compare equivalent fractions? 		
Pre-Requisite Skills and Knowledge: <ul style="list-style-type: none"> • Partition circles and rectangles into equal shares and represent with models. • Describe parts of circles and rectangles using the words halves, thirds, etc., including describing wholes as two halves, etc. • Use of number lines with whole numbers. • Adding unit fractions to name a part of a whole (ex: $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$). • Comparing whole numbers using $>$, $<$, $=$. 		
Vocabulary: fraction, numerator, denominator, unit fraction, equivalent fractions, compare, greater than, less than		
Spotlighted Mathematical Practices: MP2, MP3, MP4		
Standards	Teacher Friendly Notes	Activities/ Resources
Develop understanding of fractions as numbers. 3.NF.A.1 Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$. 3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $\frac{1}{b}$ and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ on the number line. b. Represent a fraction $\frac{a}{b}$ on a number line	<ul style="list-style-type: none"> • Use number line heavily to emphasize application of whole number knowledge to fractions. • Additionally, use number lines to reinforce partitioning and iteration. • Use of strategies and activities that build conceptual understanding (drawing models, manipulatives, fraction strips, 	Envision: Topic 12: Lessons 121, TN7, 122A, 123, 124, 125A, 125, 126, 127A, 128A, 128B Engage NY: Module 5 https://www.engageny.org/resource/grade-3-mathematics Tasks from Illustrative Mathematics: https://www.illustrativemathematics.org/content-standard/s/3

<p>diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.</p> <p>3.NF.A.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.</p> <p>a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.</p> <p>b. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.</p> <p>c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. <i>Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.</i></p> <p>d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.</p> <p>⁵Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.</p>	<p>grid paper, fraction pizza, number line).</p> <ul style="list-style-type: none"> Engage in number talks and interactive tasks to build vocabulary, reasoning skills. Continue practicing fluency of multiplication/division and addition/subtraction. Connect principles of fractions to principles of multiplication/division to reinforce proportionality. 	<p>Additional Tasks:</p> <p>http://3-5cctask.ncdpi.wikispaces.net/Third+Grade+Tasks</p> <p>https://www.tes.com/lessons/x5oB20vHV30vbQ/number-talk-resources</p> <p>http://www.yummymath.com/3rd-grade/</p>
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Module 5: Measurement and Data	Suggested Percent of Time: 33% (11-12 weeks)
<p>Module Overview: Students will tell and write time on digital clocks and clocks with hands and solve problems about time, estimate and solve problems about mass and liquid volume. Students will solve problems and draw pictographs and bar graphs to show data. Students will measure lengths and show data on a line plot. Students will understand area, find areas by multiplying, and add areas. Students will add to find perimeter and find shapes with the same perimeter and different areas or the same area and different perimeters.</p>	
<p>Essential Questions:</p> <p>3.MD.A.1</p> <ul style="list-style-type: none"> What is the difference between a digital and analog clock? How do you use the parts of an analog clock to tell time to the nearest minute? How can you measure time intervals using a number line? 	

3.MD.A.2

- In what ways can we determine the mass of an object?
- What units are appropriate to measure mass?
- What are some ways I can measure liquid volume?

3.MD.B.3

- How can graphs be used to display data?
- How do I decide what increments to use for my scale?

3.MD.B.4

- How do you use a ruler to accurately measure to the closest halves and fourths?
- How can I show my data on a line plot?

3.MD.C.5, 6, 7

- How does knowing the area of a square or rectangle relate to knowing multiplication facts?
- How can area be determined without counting squares?
- How can knowledge of area be used to solve real world problems?
- How can the same area measure produce rectangles with different dimensions? (Ex. 24 square units can produce a rectangle that is 3 X 8, 4 X 6, 2 X 12, or 1 X 24)

3.MD.C.8

- How can I use the sides of an object to determine perimeter?
- How can knowledge of perimeter be used to solve real world problems?
- How can polygons that are different have the same perimeter?
- What is the relationship between area and perimeter?

Pre-Requisite Skills and Knowledge:**3.MD.A.1**

- Understand the parts of an analog clock.
- Tell time to the nearest 5 minutes.
- Use a digital clock to tell time.
- Understand the difference between A.M. and P.M.
- Add and subtract 2digit numbers.
- Count by 1's and 5's.

3.MD.A.2

- Describe and compare measurable attributes.
- Understand that larger units can be subdivided into equivalent units.
- Understand that the same unit can be repeated to determine the measure.

- Understand the relationship between the size of the unit and the number of units needed.
- Add, subtract, multiply, and divide.

3.MD.B.3

- Understand the parts of a picture graph and a bar graph.
- Read single unit picture graphs and bar graphs.
- Solve 1 step addition and subtraction word problems.
- Know basic multiplication facts through 10 X 10.

3.MD.B.4

- Know how to measure length with a ruler. (whole units)
- Understand the concept of fractions, specifically the meaning of one-fourth, one-half, and three-fourths.
- Know how to create a line plot. (whole numbers)

3.MD.C.5, 6, 7

- Understand that a rectangle can be partitioned into equal size squares that can be counted.
- Know that a square has 4 equal sides.
- Identify and describe different polygons.
- Recall basic multiplication facts.
- Understand the distributive property.

3.MD.C.8

- Recognize polygons and know their attributes.
- Add and subtract whole numbers.
- Find the area of rectangles.

Vocabulary:

3.MD.A.1 Time intervals, elapsed time, minute, hour, hour hand, minute hand

3.MD.A.2 Mass, liquid volume (capacity), gram (g), kilogram (kg), liter (L)

3.MD.B.3 Scaled picture graph, scaled bar graph, scale, data, key

3.MD.B.4 Line plot, inch, halves, quarters, fourths

3.MD.C.5, 6, 7 Area, area model, square unit, tiling

3.MD.C.8 Perimeter, polygon

Spotlighted Mathematical Practices:

3.MD.A.1 MP1, MP4, MP6

3.MD.A.2 MP1, MP2, MP4, MP5, MP6

3.MD.B.3 MP1, MP4, MP6, MP7

3.MD.B.4 MP1, MP4, MP6

3.MD.C.5, 6, 7 MP1, MP2, MP4, MP5, MP6

3.MD.C.8 MP1, MP4, MP7		
Standards	Teacher Friendly Notes	Activities/ Resources
<p>Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</p> <p>3.MD.A.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.</p> <p>3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).⁶ Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.⁷</p> <p>Represent and interpret data.</p> <p>3.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. <i>For example, draw a bar graph in which each square in the bar graph might represent 5 pets.</i></p> <p>3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.</p> <p>Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</p> <p>3.MD.C.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.</p> <p>a. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.</p> <p>b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.</p> <p>3.MD.C.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).</p> <p>3.MD.C.7 Relate area to the operations of multiplication</p>	<ul style="list-style-type: none"> • Use multiple strategies (including a number line, tchart, clock manipulative) to teach time/elapsed time as this skill is complex. • Background knowledge of telling time to the minute is critical. • Relate to problem solving with addition and subtraction. • Connect measurement of volume and mass to real world, use lots of real life objects and manipulatives. • Make crosscurricular connections in social studies and science (for measurement, graphs, timelines, etc). • Emphasize keys and legends on graphs, relate to multiplication and proportionality. • Compare and contrast different types of graphs, engage students in generating graphs based on meaningful data. • Relate area to multiplication through arrays. • Students need to be able to find area through multiplication for regular rectangles and by counting square units for irregular or nonrectangular shapes. • Compare and contrast perimeter and area. • Apply perimeter and area to realworld scenarios. 	<p>Envision:</p> <p>Topic 10: Lesson 107 and 108</p> <p>Topic 15: Lessons: 153, 154, 155A</p> <p>Topic 16: Lessons 161, 162, 163</p> <p>Topic 17: Lessons: 172 (171 and 172 May be combined), 174, 176</p> <p>Topic 20: Lessons: 202, 203, 204, 209</p> <p>Engage NY: Module 2, 7, 6 https://www.engageny.org/resource/grade-3-mathematics</p> <p>Tasks from Illustrative Mathematics: https://www.illustrativemathematics.org/content-standards/3</p> <p>Additional Tasks: http://3-5cctask.ncdpi.wikispaces.net/Third+Grade+Tasks</p>

<p>and addition.</p> <p>a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.</p> <p>b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.</p> <p>c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.</p> <p>d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.</p> <p>Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.</p> <p>3.MD.D.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.</p> <p>⁶Excludes compound units such as cm^3 and finding the geometric volume of a container.</p> <p>⁷Excludes multiplicative comparison problems (problems involving notions of “times as much”; see Glossary, Table 2).</p>		
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Module 6: Geometry	Suggested Percent of Time: 10% (3-4 weeks)
Module Overview: Students will identify and compare properties of shapes, classify quadrilaterals based on properties, and divide shapes into parts with equal areas.	
Essential Questions: <ul style="list-style-type: none"> • How can you use properties of two shapes to differentiate them? • What are possible differences among quadrilaterals? 	

<ul style="list-style-type: none"> Why do fractional pieces of a shape have to have the same area? 		
Pre-Requisite Skills and Knowledge: <ul style="list-style-type: none"> Count sides and angles of shapes. Name polygons based on the number of sides and angles. Understand that all triangles, quadrilaterals, etc. do not look the same. Identify right angles. Partition a shape into equal parts and naming those parts using vocabulary associated with fractions. 		
Vocabulary: side, angle, rectangle, rhombus, pentagon, hexagon, attribute, parallel, parallelogram, quadrilateral, area, fraction		
Spotlighted Mathematical Practices: MP3, MP4, MP7		
Standards	Teacher Friendly Notes	Activities/ Resources
Reason with shapes and their attributes. 3.G.A.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. 3.G.A.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. <i>For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.</i>	<ul style="list-style-type: none"> Emphasize vocabulary. Use concrete manipulatives, have students generate their own examples. Build on students' understanding of fractions and connect to understandings of area. Utilize taskbased assessments. 	Envision: Topic 10: Lessons: 107 and 108 Engage NY: Module 7 https://www.engageny.org/resource/grade-3-mathematics Tasks from Illustrative Mathematics: https://www.illustrativemathematics.org/content-standards/3 Additional Tasks: http://3-5cctask.ncdpi.wikispaces.net/Third+Grade+Tasks